



543169

(43) International Publication Date
5 August 2004 (05.08.2004)

PCT

(10) International Publication Number
WO 2004/065761 A1

(51) International Patent Classification?: **E21B 44/06**,
F15B 11/17, 13/02

(21) International Application Number:
PCT/FI2004/000034

(22) International Filing Date: 23 January 2004 (23.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
20030115 24 January 2003 (24.01.2003) FI

(71) Applicant (for all designated States except US): **SAND-
VIK TAMROCK OY** [FI/FI]; Pihtisulunkatu 9, FI-33330
Tampere (FI).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MUONA, Jouko**
[FI/FI]; Jokisjärventie 84, FI-37200 Siuro (FI). **NIEMI,
Jaakko** [FI/FI]; Pyydystäjänkatu 8, FI-33580 Tampere

(FI). **OSARA, Jukka** [FI/FI]; Parkumäentie 14, FI-39100
Hämeenkyrö (FI). **PÖYSTI, Tapani** [FI/FI]; Tampellan
esplanadi 6 D 9, FI-33100 Tampere (FI). **UITTO, Vesa**
[FI/FI]; Välikuja 4, FI-33720 Tampere (FI).

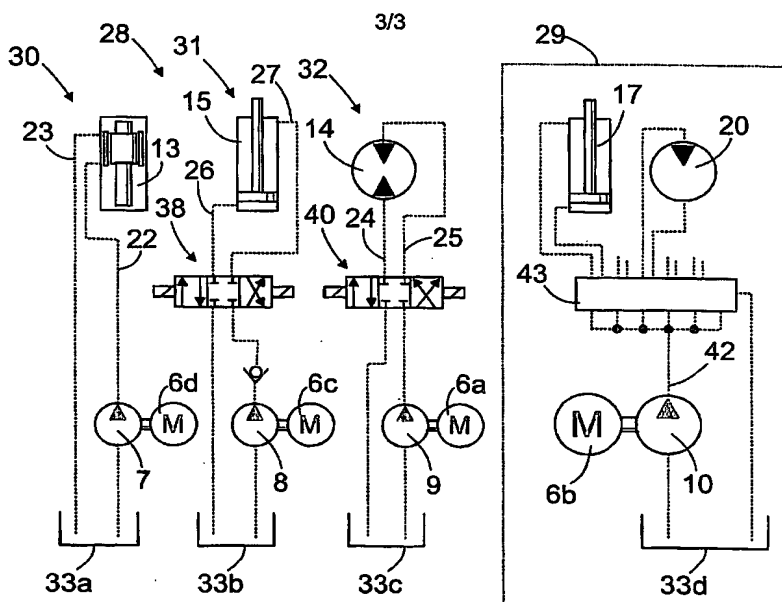
(74) Agent: **KOLSTER OY AB**; Iso Roobertinkatu 23, P.O.
Box 148, FI-00121 Helsinki (FI).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,

[Continued on next page]

(54) Title: **HYDRAULIC SYSTEM FOR MINING EQUIPMENT AND METHOD OF ADJUSTING POWER OF ROCK DRILL
MACHINE**



(57) Abstract: The invention relates to a hydraulic system for mining equipment and to a method of adjusting the power of a rock drill machine. At least one mining actuator (13, 14, 15) used for detaching rock is connected to a dedicated separate hydraulic circuit (30, 31, 32) comprising a special hydraulic pump (7, 8, 9). The power of said mining actuator is adjusted by changing the hydraulic power generated by the separate hydraulic circuit of the hydraulic pump.

WO 2004/065761 A1



GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD,*

SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

- *of inventorship (Rule 4.17(iv)) for US only*

Published:

- *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.